

EPA REVIEW COMMENTS

PHASE I RFI/RI WORK PLAN
OU 7 - PRESENT LANDFILL
SUBMITTED JUNE 4, 1990

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General Comments:

The Work Plan submitted reflects a general misunderstanding of the RI/FS and RFI/CMS processes and the role of this particular step in the overall site remediation process. Reference is made in several areas to the purpose of an RFI/RI being to "provide justification for performing or not performing remedial action" or to support selection of a "no action" alternative. Such statements are incorrect, misleading, and prejudicial. The purposes of the RFI/RI and CMS/FS studies (which are not differentiated here, and should be) are clearly established in appropriate guidance documents, which should be carefully consulted during revisions.

Where the Work Plan references pertinent guidance documents, they are often incorrectly applied. For example, Section 3.0 describes an essentially correct sequence of alternative development and screening activities, but wrongly assigns them to the RFI/RI. While Remedial Action Objectives and General Response Actions are established early in the RFI/RI to support scoping and data quality objective development, the development and screening of alternatives is actually part of the CMS/FS.

The plan as presented consists of edited portions of previously submitted documents and "limited additional evaluation of existing data." Given the extended time period available in the IAG schedule for revision and resubmission, a detailed evaluation of all historical information, previous studies, data, and activities at the Present Landfill must be incorporated in the planning process. Proposed Phase I field activities must be reevaluated based on the findings of this evaluation. This will allow for elimination of unnecessary items, help focus investigations on data deficiencies pertinent to decision-making, and minimize the need for further source characterization.

The scope and nature of the proposed RI/FS for the landfill source characterization should be examined for consistency with the current National Contingency Plan (NCP). Note that Section 300.430(a) contains the expectation that engineering controls such as containment generally will be appropriate for certain types of sites which pose a relatively low long-term threat or where treatment is impractical. This has been interpreted to apply to many types of landfills, and allows for a streamlined RI/FS designed to support use of engineering controls as a major component of the final remedy. For the Present Landfill, the

level of threat and the practicability of treatment are currently unknown; thus the applicability of this expectation cannot presently be determined. However, any reasonable expectation that the final remedy will incorporate engineering controls indicates a need for physical and engineering evaluations of the existing cover and the leachate collection/groundwater diversion systems.

As the document instructing personnel exactly what to do, the OU 7 Field Sampling Plan (FSP) exhibits serious deficiencies. It fails to present even minimal information on field and laboratory procedures, generally addressing these issues by reference to the site-wide SOP and QAPP currently in preparation. Many missing items apparently involve site-specific questions and thus must be discussed separately in relation to this OU. This document is meant to be used in the field, not merely submitted to meet an IAG deadline and forgotten. DOE must reassess the OU 7 FSP in conjunction the SOP and QAPP revisions pursuant to relevant EPA comments, and provide additional documentation required for the final OU 7 FSP.

The Work Plan must include a milestone schedule for completion of the RI/FS which is consistent with the established IAG deadlines and highlights any potential compression due to changes in the assumed scope made during the planning process. Staffing and resources for the OU 7 effort should also be discussed to the extent that they impact the ability to complete the proposed scope within the scheduled interval.

Expanded use of figures and tables for displaying information such as well construction details and analytical schedules would greatly improve this document, as would the placement of such items following the first reference made to them in the text.

Specific Comments:

Executive Summary, Page 11. The term "Sanitary Landfill" as defined in RCRA Subtitle D does not apply to the disposal site in question.

Section 1.3.2, Page 1-7. In the lithologic description of the Arapahoe Formation, it should be made clear that claystone with some channel sandstones predominates in the vicinity of RFP. Elsewhere the formation is primarily sandstone and conglomerate.

Section 1.2, Page 1-3. The stated objective of the RFI/RI is given here as obtaining "information to sufficiently characterize the source and soils for a preliminary (Phase I) evaluation." This is incorrect, and seems to contradict both statements elsewhere in the plan and the IAG. The Phase I RFI/RI for OU 7 is supposed to characterize the source to the extent necessary to

support a feasibility study and implementation of the Phase I remedy, not merely set the stage for more study. The Phase II RFI/RI will focus on defining the extent of contamination in environmental media, and must not be considered as a convenient place to correct oversights in the Phase I.

Section 2.1.1.2, Page 2-5. Please show the current location of the containers removed from the Hazardous Waste Storage Area on the site map.

Section 2.1.4.1, Page 2-10. The statement that ground water discharges from surficial materials into the underlying bedrock should be supported with appropriate data; it should also be qualified to clarify that hydraulic connections to lower sand units may or may not exist in some areas and that the Phase II investigation will quantify this.

Section 2.1.6.1, Page 2-15. Drawings produced at the time of the groundwater diversion/leachate collection system installation (1974) show drainpipes placed on both sides of the barrier. Those produced during addition of the slurry walls (1982) omit the pipe on the leachate collection side, as does the description of the system presented here. Which is correct?

Section 2.1.6.2, Page 2-16. The description of the slurry wall/trench junction does not appear to agree with Plate 2-1, which shows a large gap in the northern wall. Which is correct?

Section 2.2.1, Page 2-17. Additional efforts to characterize waste composition using a definition of hazardous waste consistent with current regulations should be undertaken as part of the Phase I RFI/RI. This must include an attempt to define materials in the inherently ambiguous categories (such as the "nonhazardous solid waste" identified as "miscellaneous sludges") and the quantities involved.

Section 2.2.1, Page 2-19. What happened to the 57 wells drilled in the landfill? Were they filled, demolished, or abandoned? If so, describe how and when. If not, provide their locations, depths, available construction/completion data, and an evaluation of this information. Provide the basis for the estimated disposal date of 1970, and provide any available details on the nature of this "source". What was it, where did it come from, and why was it simply dumped in the landfill? Was this a mistake, or a standard practice? Did it happen only once?

Section 2.2.3. It appears a substantial volume of data are available for groundwater in and around the landfill. The comparison of upgradient and downgradient contaminant concentrations presented here is of limited value, unless it assists in characterizing the source/soils. If the information available to date and/or through continued sampling of the many

existing wells is not useful in this regard, then it must be made clear how the additional proposed wells and samples will change the situation. Many of the wells completed in valley fill sediments downgradient from the landfill were reported as dry during subsequent sampling. Explain why this occurred and how similar problems will be avoided in the future (p 2-23)

Section 2.2.3.1, Page 2-23. The assertion that certain values "may have represented laboratory contamination" cannot be taken on faith. Pertinent QA/QC data and specific procedures (if any) used to blank-correct data before it is reported must be provided to support data evaluation. The presumption must be that observed values indicate contamination. This must be rebutted by hard evidence before such indications can be disregarded.

Section 2.2.3.2, Page 2-23. Supporting information must be provided for the theory that "natural saline mineral dissolution" is the "cause" for a downgradient "source", or it should be reevaluated. Does the local geochemistry facilitate this phenomenon? Do published references support this theory?

Section 3.3, Page 3-4. The IAG schedule does not establish data requirements, nor should it. These are developed early in the RI, much as the plan describes in Section 5.0. This separate discussion of data needs for alternatives evaluation is contradictory, incorrect, and misplaced.

Section 4.0. No attempt was made to identify ARARs for OU 7. This is unacceptable. Many ARARs are well established for landfill closures, and can be identified with a reasonable effort. This must be done during plan revisions and is necessary to support determination of DQOs. These can be revised later in the process if necessary, but there is no valid reason for not completing a preliminary analysis at this time. This must include compliance with IAG SOW requirements, and be in accordance with EPA comments on previously submitted ARARs analyses.

Section 5.1, Page 5-1. This is not an evaluation of existing data, but a restatement of conclusions reached in previous reports. The purpose of including them here is unclear. A genuine evaluation of existing data is definitely needed, and should be included in the site characterization and considered in the design of the FSP.

Section 6.5.2, Page 6-4. The dot list contradicts RFI/RI objectives stated elsewhere, and the reference to "limitations of the Phase I scope" is troublesome. If the Phase I scope incorporates "limitations" which will prevent proper source characterization, they must be identified and corrected by augmenting the scope.

It is not necessary or appropriate to discuss criteria for

identification of contamination at this point. The statistical techniques used to identify background are still under review, and their applicability to decision making at OU 7 remains to be determined during the RFI/RI.

Section 6.6. The Phase I program must provide the data needed to complete a Phase I baseline risk assessment, not "begin providing". The description of the Risk Assessment process consists of excerpts from guidance documents, which says nothing about the question at hand. What is needed here is a discussion of how these general procedures will be applied to support decision making under the specific circumstances and constraints at OU 7. This must include a discussion of baseline assumptions, exposure scenarios, and specific receptor populations to be considered in assessing risk for this OU.

The information provided does not adequately describe the criteria to be applied in eliminating a contaminant from the list of chemicals of concern. This must include consideration of exposure potential under both current and future land and water use patterns. The simple comparison of observed concentrations to ARARs is not only misleading but inappropriate in this context. The assessment of risk (as opposed to ARAR compliance) can only be based on reliable estimates of contaminant concentrations at current or potential exposure points, and the RI/RFI must include sampling as required to support this decision process.

Section 6.7. This section is quite weak, and generally indicates an unacceptable neglect of environmental risks. The survey of aquatic and terrestrial populations described is unlikely to provide sufficient information to support an adequate assessment of impacts. No provisions are made for comparison of survey results with similar data from other sites or for consideration of future impacts, which could become more severe due to changing environmental conditions. Toxicity testing should be considered as an integral part of the RI/RFI; EPA currently recommends both laboratory and in-situ tests, as appropriate for the site. The discussion of toxicologic endpoints for (we assume) derivation of site-specific remediation goals requires substantial revision; it is very confusing, and generally ignores recommendations included in the cited reference.

Section 6.9, Page 6-13. Specify how the Preliminary Site Characterization Summary fits within the IAG schedule of deliverables and your understanding of the review/approval process for this document

Section 7.0, Page 7-2 Please define "Phase I level" as it is used in stating the objective of characterizing the "source and soils at a Phase I level." Again, the whole reason for doing a work plan is to avoid the need for further source and soil characterization during Phase II, not to assume it can always be

done again later if it wasn't done right.

Section 7.1.1, Page 7-2. If current topographic information is not available, it must be obtained during the Phase I field effort; this must include surface topography, structures, wells, and sampling points. Proposed benchmarks, coordinate systems, and accuracy for surveys must be in the work plan. The remainder of this background discussion is repetitious and unnecessary.

Section 7.1.2, Page 7-3. Methods for sampling and analysis of landfill wastes other than borings are available and should be proposed if this information is judged to be important to the decision making process based on the preliminary Remedial Action Objectives. Sample preparation and analytical procedures could be developed for this purpose.

Section 7.1.2, Page 7-4. The groundwater diversion system plans indicate the north and south arms had three outlets each. No one seems to know what position the intermediate valves are in. Please explain how you know the diverted flows are reaching the proposed sample point. In addition, provide some justification for the lack of any attempt to locate, examine, or sample the discharge from the leachate (inner) side of the system

If containment becomes a component of the remedial action, the presumption that characterization of the existing cover is unnecessary will prove unacceptable, and costly. Also, please explain how required leachate generation and subsidence potential estimates will be made without this information.

Section 7.1.3.1, Page 7-5. Please explain the differences in completion and construction for the two piezometers as opposed to the wells and provide some reasoning for completing certain holes as wells, piezometers, or not at all. It is prudent to complete all holes as wells. Typical construction details for each type of completion must be provided. These should highlight differences based on the relative positions of the water table, bottom of waste, bedrock, sand lenses, and other important features.

Section 7.1.3.1, Page 7-6. The specific procedures for drilling, sampling, well construction, well development, sample packaging, and anything else that will happen in the field at OU 7 must be included in this plan and/or in the SOP/QAPP. That is the whole point of writing the plan. Simply saying that they will be developed at some future point is completely unacceptable.

The text indicates that a number of decisions on drilling and well construction procedures will be made in the field based on observation and judgement. The inclusion of a decision tree or similar organizational device showing the criteria for decision making and consequences of the various choices in terms of completion methods would help clear up this confusing discussion.

This would be a great help both to the reviewers and, ultimately, the field geologist who executes this plan. The criteria must be as specific and precise as possible. For example, the decision to obtain additional sample should indicate what types of observations should be made, what field screening will be done, with what instruments, how and when, and what readings will be considered indicative of "significant contamination".

Section 7.1.3.1.2, Page 7-7. Inclusion of the completion details mentioned above would help clarify this discussion, which is very confusing in its present form.

The discussion of screen placement indicates many wells will have screens as much as 35 feet long extending to within 5 feet of the ground surface. This may allow for gas and water sampling from the same hole, but will not produce representative gas samples or characterize specific zones within the landfill, and will provide a direct route for vertical movement of leachate. Completion in this manner is extremely ill-advised; the high risk greatly outweighs the small potential cost savings.

Established practice dictates a waiting period of two weeks between well development and sampling to allow for stabilization.

Section 7.1.3.2.2, Page 7-9. A sampling depth of 12 inches for soil gas will yield poor results due to the introduction of ambient air unless the ground surface is sealed.

Section 7.1.3.2.4, Page 7-10. Sampling soil less than 1 foot deep for volatiles is a waste of time and money, particularly after stirring them up with a hand auger.

Section 7.1.3.2.5, Page 7-10. The first paragraph of this section is indecipherable. Please explain what a Phase I survey is and how it differs from the Phase I RFI/RI and which one comprises the random systematic and stratified sampling, if either one does. If not, then explain where they do fit in. In general this seems like an unnecessarily elaborate and complicated approach to a relatively simple problem, especially when all these hijinks yield only a 70% chance of finding a contaminated area. You could do at least that well using observation, judgement, and a little experience.

Section 7.2, Page 7-12. This section should include a table showing the number of samples for each media, locations/depths analyses, QA samples.

Section 7.2 3, Page 7-14. Please explain the meaning of "analyses that potentially may be performed". The plan must show the analyses to be performed and the sample quantities required so the field crew knows what to do before they get to the site.